

The microscopical examination reveals a typical glioma with multiple hemorrhages. In areas the cells are of medium size, closely set and show but little protoplasm. In other places the glia fibers seem to predominate. The most recent hemorrhage has extended into the left lateral and third ventricles and caused symptoms by pressure from within outward.

In conclusion this case corroborates the oft-noted observation that psychic disturbances may occur in brain tumor irrespective of its location. It will be seen that the entire prefrontal lobe is free from disease, and yet several weeks before the end there were decided psychic symptoms.

PATHOLOGY OF PSEUDOHYPERTROPHIC MUSCULAR DYSTROPHY.

By O. P. Johnstone, M.D.

The case is that of a boy between 15 and 20 years of age. Two other children in the family had previously died with typical symptoms of pseudohypertrophic muscular dystrophy. The clinical history of this case unfortunately is not available at the present time.

The splenius colli, erector spinæ, gastrocnemius and soleus muscles, and the 1st cervical, 5th cervical, 7th dorsal, and 3d lumbar segments of the cord have been examined. The erector spinæ showed the most marked changes of any of the muscles examined. Hardly a single recognizable muscle fiber remains in the sections studied, except those in the muscle spindles. A very few degenerated fibers are found, which, however, could not be recognized as muscle tissue, if the source of the section had not been known. The section is made up of a mass of fatty and connective tissue, the latter not very great in amount. Grossly the tissue appears to be a mass of adipose tissue with a few pinkish points here and there. Cellular infiltration is not much in evidence. Muscle spindles are numerous, several being found in practically all sections examined. A few muscle fibers within them are normal and show cross striations well. Fully as many have lost their cross striations, show longitudinal segmentation, central nuclei, and moderate atrophic and hypertrophic changes. The atrophic and hypertrophic changes are not marked, however, the smallest fiber found measuring 10 micra in diameter, the largest 65 micra. Their cross section is round or oval. The nerves within the spindles show no apparent changes, with the hematoxylin and eosin stains.

The splenius colli was next in the extent of involvement, from two-thirds to three-fourths of the fibers having disappeared in some sections. In other sections nearly all the fibers have disappeared. The lost fibers have been replaced by fat, or the empty sarcolemma remains. Here most of the fibers remaining show good cross striation, but stain somewhat unevenly. Those which have lost the cross striation and show longitudinal segmentation are for the most part hypertrophied fibers. There is a most striking difference in the diameter of the individual fibers in this section, some measuring as little as 4 micra, while others lying close by measure from 100 to 200 micra in diameter. Most fibers measuring more than 100 to 125 micra show loss of cross striation, with granular degeneration, and longitudinal segmentation. These degenerative changes are found in but few fibers of normal or less than normal size. Many fibers show complete disappearance of the muscle substance, only the

empty sarcolemma remaining. Some of these show many nuclei within the sheath; more however show only a moderate increase or no increase in the nuclei. Occasionally centrally placed nuclei or chains of 15 to 30 such nuclei are seen in the fibers. Cross section shows the fibers round or oval, widely separated, and occasional central nuclei. Some of the cross sections of the fibers show splitting into two or more parts, others show the fibrillæ very plainly. Longitudinally different parts of the same fiber show marked difference in diameter, and in the clearness of the cross striation. Very many of the fibers appear distorted and kinked.

The connective tissue between the fibers is only moderately increased in amount; in some places the connective tissue appears to be young and richly cellular, in other places mature and with the usual number of nuclei. A few sharply outlined small masses of apparently lymphoid cells are seen. A few polynuclear leucocytes are present in these masses. There is no evidence of inflammatory reaction about these areas.

The fat is very great in amount and for the most part is in the connective tissue between the muscle fibers. Some small droplets are seen within the muscle fibers, but the amount is strikingly limited.

The walls of the blood vessels appear decidedly thickened. No changes can be detected in the nerves with the hematoxylin-eosin stain. No muscle spindles are found in the sections examined.

The gastrocnemius and soleus muscles show the least involvement, about one half to two thirds of the fibers having disappeared. The changes are very similar to the changes in the splenius colli, only less marked. In these sections, especially in the muscle bundles least involved there is a striking tendency for the fibers to disappear and be replaced by fat in the center of the muscle bundle, the periphery being comparatively normal as far as the disappearance of the fibers and replacement by fat is concerned. Apparently the fibers in the center of the muscle bundles are the first ones attacked by the degenerative process.

Sections of the cord at the first and fifth cervical, the seventh dorsal and third lumbar segments, show no changes in either gray or white matter when stained by the hematoxylin eosin and Weigert-Pal stains. Nissl's stain could not be used as the tissue had not been suitably fixed.

DEMONSTRATION OF A BRAIN SHOWING TUBERCLE IN PONS WHICH CAUSED HEMIPLEGIA ALTERNANS

By Sydney Kuh, M.D.

The patient was a boy two years old when first examined. He was first seen on October 25, 1907. His present trouble began in January of that year with a weakness of the left arm which increased very gradually, until that member had become entirely useless. His family history was negative. He had been born at full term, after a normal labor, and was breast fed. He never learned to walk, but began to talk when about a year old, although he never learned to say more than a few simple words. About April, 1907, the child was taken to a hospital for his paralysis, and while there he is said to have had an attack of both scarlatina and measles. There is no history of vomiting or spasms and nothing suggestive of dimming of vision has been noticed. The course of the disease has been afebrile.